

XXXI.—*Field-notes on the Land-birds of Sabaragamuwa Province, Ceylon.* By FREDERICK LEWIS, A.C.F. Ceylon, F.L.S.

BEFORE proceeding to enter into the more minute details of this paper, it may not be out of place to give a short general description of the province of Sabaragamuwa, so that the readers of 'The Ibis' may more fully be able to picture to themselves the character of the country in which the birds described are to be found.

Briefly, the province contains very nearly the greatest range of altitude in Ceylon, and if Pidurutalagalla, our most lofty mountain, be excluded, this general statement is more nearly correct, as Sabaragamuwa extends from about 50 feet above sea-level to close on 7200 feet. In this wide variation of altitude there is, naturally, wide variation in temperature. Not only does the thermal variation show wide differences, but the rainfall is still more variable, for it ranges from, roughly speaking, 40 inches at Embelipitiyé in the dry zone, in the east, to close on 300 inches in the valley of the Kuruganga, within the influence of Adam's Peak.

Amid such rapid variations, both of temperature, altitude, and humidity, a still more changeable state of soil and vegetation is met with. In the hot and dry flat country—the Bintenna of the Singalese—a rich soil is found. In the wet steaming forests, within the limit of the high rainfall, the soil is sandy, poor, and usually shallow, while up in the high altitudes the forest-clad hill-ranges are frequently broken by long open stretches of grass- or "patina"-land. The presence of these patina-lands is not clearly accounted for, and various theories have been put forward to explain why there should be a hard-and-fast line between high forest and short grass; but though some of the explanations are distinctly plausible, they do not answer all the conditions of the problem. I may here state that patina-land is not the exclusive characteristic of the hill-country, but its occurrence has an undoubted effect on the distribution of the birds, and as such forms an important factor. Not only so, but the



MAP OF THE PROVINCE OF SABARAGAMUWA, CEYLON.

conditions of forest distribution are also to some extent affected.

Taking the general physical conformity of Sabaragamuwa as a whole, it may be regarded as very mountainous over two-thirds of its entire area, the flat country being mostly to the south and nearest the sea, while the hill-ranges begin rapidly to rise from Ratnapura, the chief town of the province, both to the east, north, and north-west; but in making this general statement it must not be supposed that all the hill-ranges radiate from the spot mentioned. The great mountain-zone that divides the Sabaragamuwa Province from the Central Province may be said to take its rise from the bottom of the valley through which the Kalani river forces its way into the lower plains, and rapidly rises until it reaches Adam's Peak, comprising within that area the wettest part of Ceylon. From Adam's Peak a continuous high altitude is maintained towards the east, where vast precipices are found, around which some of the most curious variations of vegetable life occur. The hills then undulate a little to the north, when the Horton-Plain country is reached, and the basin of the Belihuloya stream terminates the province-boundary to the east, after which the Uva Province takes up the continuation of the great hill-zone.

The high rainfall already referred to of necessity gives rise to a great number of streams that in turn form rivers of considerable magnitude. None of these rivers are, within the province under description, subject to tidal action, but all of them, during the period of high rainfall, overflow their banks, causing (except in the case of the Wallawey river that flows for the greatest part of its entire length through the "Bintenna," or dry zone) floods over large portions of the country.

The wet forests, or areas in which the mean humidity is high, contain by far the largest proportion of vegetable life, and it is here that the greatest profusion of birds may naturally be expected to occur, but such is not the case as regards species. Numerically the individuals in the wet forests may be abundant, but for variety of species the dry zone has the

preponderance in its favour. Thus, taking two extreme points, at Kittulgalla, where the rainfall is over 200 inches, it is unusual to find more than five species of Hawks; on the other side of the province, at Embelipitiyé, more than a dozen kinds will be found in a day. Again, instead of taking the variation on an east-and-west line as above, let us take a north-and-south direction, the former in the hill or high-level country, and the south pole of observation in the plains; we shall find in the hills *Zosterops ceylonensis*, *Kelaertia penicillata*, *Elaphrornis palliseri*, *Parus atriceps*, and *Myophonus blighi* as typical mountain-forms, while our south pole of observation will take in at a glance *Haliastur indus*, *Palæornis torquatus*, *Megalæma zeylanica*, *Zanctostomus viridirostris*, *Caprimulgus asiaticus*, *Thamnobia fulicata*, *Ixos luteolus*, *Rhipidura albifrontata*, not to mention numbers of more or less water-loving birds. So much for distribution by altitude. This, however, is not the entire limit of variation, for while in some cases altitude and rainfall do in a measure restrict the individual limits of distribution, as well as reduce the variety of species, yet the position of the country as a whole brings it within the scope of migration of numbers of birds from the temperate zones of the earth as well as of purely tropical migrants.

I venture to think, therefore, that distribution is to be looked for only among endemic species, and it is here only, so far as my personal observations go, and these extend over the last 16 years, that fixed areas of distribution can be found; and this distribution is further reacted upon by other conditions of environment, such as the presence or absence of grass-lands, swamps, high forests, and bush-lands.

Another very important factor in bird-distribution is the influence of the monsoons. During the south-west monsoon months that extend from the early part of May to the early part of September, most of our migratory species are absent. High winds prevail, and in parts of the province, especially to the north-east, the whole of the vegetation of the country is passing through a continuous period of unrest. Insects are blown away to more sheltered spots, flowers are few, and

when formed are rudely torn off and lost, and those birds that remain are forced to a state of comparative privation.

When, on the other hand, the north-east monsoon comes in, with its sharp local thunderstorm, a still air, and a burning sun, then bird-life is found in profusion. The first of the migratory species to appear is generally *Motacilla melanope*. This beautiful little Wagtail will be found often on the 1st of September, and in a few days, from the banks of the cold bubbling streams in the heart of the "wilderness of the Peak," down to silent rivers of the "Bintenna" country, this ever active little bird will be found in restless movement in search of its food. Soon after, and often together with this Wagtail, will be found *Merops philippensis* and *Hirundo rustica*, while more to the south, in the swamplands and rice-fields (paddi-fields), the sportsman of the country hopes to record his bag of the "first Snipe of the season." The Snipe (*Gallinago stenura*) arrives about the 2nd of September and departs at the end of April, though it is not uncommon to find individual specimens so late as the 10th of May. In the hills, as well as in the low country, migratory species begin to increase in number, counting among them such species as *Cerchneis tinnunculus*, *Hierococcyx varius*, *Lanius cristatus*, *Terpsiphone paradisi*, *Phylloscopus nitidus*, and *Pitta coronata*, not to mention many others that are less noticeable. The stream of migration is difficult to follow, as it has never been regularly observed at different points at right angles to its course simultaneously; but the impression I have gathered from my own observations is that in this province the incoming stream strikes well to the south of the main mountain-ranges, while the outgoing may be taken at first as a gradual thinning of species in the hills and increase in the plains, after which the departure takes place, probably in the course of a few nights. I have not been able to find any special places or points at which birds of any one species congregate previous to departure, and I receive with doubt the statement insisted on by some observers that this association does take place, as it has not been supported by my own direct experience, beyond a few occasions

on which I have found large assemblages of birds of one species within one isolated area. These occasions, however, were not at those periods when the outward migration was commenced, but rather on the contrary. I will, in its proper place, again refer to this fact in its relation to migratory as well as endemic species.

The influence of vegetation in relation to the fluctuation of migration is also obvious, and I will take four types of country as illustrating this:—First, the dry forest-land within the minimum rainfall limit; second, the wet forests within the maximum rainfall limit; third, the grass- or patina-land limit; and fourth, the swampy and bush-land limit.

The first of these, of course excluding Waders, includes the greatest number of species, embracing migrants and residents and a proportion of endemic species, in contradistinction to birds that are resident but not indigenous. The wet forests produce a certain number more of resident and endemic species than the dry forests. The grass-country is distinctly specific in distribution, and swampy and bush country may be said to exhaust the families of Waders and supplement their numbers by a few endemic and a large proportion of the resident and migratory species.

It would be out of place here to attempt to give anything like a description of the botanical aspect and features of such a province as Sabaragamuwa, but I would draw attention to the fact that the fruiting of certain trees at regular intervals in the year, and again of others at periods separated by years of interval, bring about corresponding times within which the increase of certain frugivorous birds can be distinctly traced to this cause. For example, the fruiting of the banyan-tree will gather multitudes of Barbets and Pigeons, while the seeding of a gregarious *Strobilanthes* in the highest hills brings the Jungle-fowl (*Gallus lafayetti*) in the greatest abundance where before they were only occasionally seen.

The valleys of the larger rivers appear to mark the ranges of certain species, and in this particular I find the most restricted to be *Merops swinhoii* and *Carpophaga aenea*, not,

of course, counting Kingfishers or Waders. To this might be added a larger number, as found in the valleys of the rivers in the dry forest-region; but possibly that may be accounted for by the fact that the rivers in that locality are always fringed with trees that, on account of the increased moisture at their roots, are more healthy, and produce food in the form of fruit, and food for insect-life, that in its turn is devoured by insectivorous birds.

The period of nidification generally corresponds to that of the greatest vegetable activity, but this is by no means true as regards all the species. It is also remarkable that many birds are found building just before the burst of the monsoon, for it cannot be assumed that birds hatched at that time can ever be brought to maturity; in fact, I have on many occasions found dead nestlings and nests drowned out by rain.

In the following list I propose to give a description of the local ranges and distribution of the birds of this portion of Ceylon. I have followed, both in nomenclature as well as classification, the names and arrangement adopted by Col. W. V. Legge in his monograph of Ceylon birds, a work that, I may presume to remark, is not only a monument to the industry of its gifted author, but is an admirable text-book of the ornithology of the island of Ceylon.

ACCIPITRES.

1. *CIRCUS CINERACEUS* Mont. (Legge, 'Birds of Ceylon,' p. 12).

A migratory visitor and very variable in colour. I have found it in the dry zone to the south of the province and in the grassy country to the east, where it may be mistaken for the next species.

2. *CIRCUS MACRURUS* (Legge, B. of C. p. 17).

A regular migrant, arriving in large numbers in October and spreading over the open country up to the highest hills. It does not occur in forest-land, but is found in both marsh- and grass-land, besides frequently visiting the tea-plantations,

where occasionally it gets shot. It leaves the province towards the end of the N.E. monsoon, about which time it is most abundant in swampy lands.

3. *ASTUR TRIVIRGATUS* (Legge, B. of C. p. 20).

A resident species and confined to the forests at both high and low altitudes, but I have not found it in the strictly dry zone. Its eggs have been taken in Ceylon, but I have not seen them. I have noticed that during the north-east monsoon this Goshawk is more plentiful at high altitudes than during the opposite season.

4. *ASTUR BADIUS* (Legge, B. of C. p. 23).

I have observed this bird most frequently at 2500 feet elevation in open land. It is a resident species and very solitary in its habits.

5. *BUTEO PLUMIPES* (Legge, B. of C. p. 31).

I have seen only the skin of one shot in the Bambarabotowa forests. A rare visitor to Ceylon.

6. *LOPHOTRIORCHIS KIENERI* (Legge, B. of C. p. 43).

I have only on one occasion seen this fine bird at 2300 feet elevation flying round some high forest and rocky land near Balangoda on the eastern side of the province.

7. *NEOPUS MALAYENSIS* (Legge, B. of C. p. 47).

This is an abundant species, but though it is often seen up to the highest elevations, it is more frequently met with in the drier portions of the province: thus it may be found more common to the east than in the western half of Sabaragamuwa. Resident.

8. *SPIZAËTUS KELAARTI* (Legge, B. of C. p. 51, pl. i.).

Peculiar to Ceylon and confined to the hill-country at high altitudes. A fine specimen shot by myself was obtained at an altitude of 5000 feet.

The restriction of this species to high elevation and to forest-clad hills is noticeable in the case of a bird with such powerful flight.

9. *SPIZAËTUS CEYLONENSIS* (Legge, B. of C. p. 55, pl. ii.).

A low-country species and frequenting only the dry forests, where I have found it towards the base of the southern hills.

10. *SPILORNIS SPILOGASTER* (Legge, B. of C. p. 61).

Common nearly all over the province, but more abundant in the dry parts. It is a resident species.

11. *HALIASTUR INDUS* (Legge, B. of C. p. 76).

Restricted to the dry zone of the province. I have found it hawking in great numbers over the tanks in the south-east, where it may be found all through the year. Resident, but I am not aware that it breeds in the province.

12. *ELANUS CÆRULEUS* (Legge, B. of C. p. 85).

A common species, most frequently found affecting the grass-lands of the province, but not strictly confined thereto. It is distinctly more plentiful during the N.E. monsoon, and must therefore be regarded as partially migratory.

13. *CERCHNEIS TINNUNCULUS* (Legge, B. of C. p. 114).

A migrant during the N.E. monsoon, during which period it may be found at all elevations, but is not so particularly abundant in the wettest or driest parts of the province. It becomes scarce in April, during which month it probably takes its departure.

STRIGES.

14. *KETUPA CEYLONENSIS* (Legge, B. of C. p. 127).

A dry-zone bird, but occasionally found up to 2500 feet altitude in the neighbourhood of rivers only. Its favourite haunts in Sabaragamuwa appear to be in the large trees fringing the rivers and tanks in the "Bintenna," where this large Owl may be found all the year round. I am not able to record anything of its nidification.

15. *BUBO NIPALENSIS* (Legge, B. of C. p. 131).

I record this species with much hesitation as being found in the wet forests. I base my record on a description that I

received from a friend, who procured and described what I believe to have been a specimen of it, but I cannot speak of it with certainty. Its occurrence is, however, very probable.

16. *SCOPS BAKKAMĒNA* (Legge, B. of C. p. 135).

A very common resident species throughout the province up to 2500 feet, but more numerous at lower altitudes.

17. *SCOPS MINUTUS* (Legge, B. of C. p. 142, pl. iv. fig. 2).

An endemic species. I have only once procured this beautiful little Owl at 4000 feet in high forest.

18. *NINOX SCUTULATA* (Legge, B. of C. p. 145).

Recorded as common, but that is not my experience, as I have obtained it only once from the wet forests in the Balan-goda district at 2500 feet elevation.

19. *GLAUCIDIUM CASTANONOTUM* (Legge, B. of C. p. 149, pl. iv. fig. 1).

An abundant resident species, and mostly confined to the wet forests of the higher ranges. I have met with it in dense forest in the neighbourhood of Adam's Peak, and again near the Horton Plains.

20. *SYRNIUM INDRANI* (Legge, B. of C. p. 155, pl. v. fig. 1).

This is the so-called Devil-bird of the Europeans, and is regarded by the natives of the country as a creature of ill omen, probably because of its wild and unearthly cries. The question has often been raised whether this Owl is the real cause of the dreaded cry or not; but while it is more than likely that the hoot of the Eagle-Owl (*Bubo nipalensis*) is equally appalling, yet, from my own experience, I can assert that the application of the local name is fully justified in the case of this species. I have on two occasions had the opportunity of hearing the cry of this Owl, which can only be described as blood-curdling. On the first occasion I was walking through a small clump of dense forest, and just as I was getting out into some grass-land (patina) I heard sounds that led me to believe a woman or a child was being murdered. It was a cloudless night, with a full moon shining, as clear

as day, and so I could see all round me with perfect distinctness. I looked about, expecting each moment to find a dead body, when presently I heard a few feet from me a deep hiss, followed by a chuckling sort of laugh, and this again succeeded by a gurgling sort of sob. Then followed a deep and melancholy wail, ending in something like a scream. I stood perfectly still, but very uncomfortable, till I saw just a little above me a large Owl, in the full pure light of the moon, moving its body and puffing out its feathers as each cry followed the last. A movement on my part soon stopped all further sound, and the bird slowly assumed a more dignified attitude. The close bold barring on the feathers could be clearly seen in the moonlight, and the dead silence that followed the bird's noticing me within a few paces of it make it certain that this bird was the cause of the fearful sounds I heard, and which it—perhaps unfortunately—did not repeat. So soon as I moved it flew off with a slow, noiseless flight, and I heard no more. My second experience was much the same, except that on this occasion the bird was seated on a stump of a fallen tree, and it was startled by me before it got much beyond the overture of its dreadful opera.

This is a resident species, affecting the wet forests up to the highest ranges. I obtained a chick and reared it up to a full-sized bird; but all the time I had it I never heard it produce any sound but a hiss, or at times a contented sort of chuckle when I gave it its food. The general belief among the Singalese is that this bird cries only when there is a death, but they fail to perceive that if such was the case the bird would be pretty generally employed!

21. *PHODILUS ASSIMILIS* (Legge, B. of C. p. 161, pl. v. fig. 2).

A very rare resident species, indigenous to the country. I have obtained it from the forests bordering the wet zone in the Balangoda district, and it has again been procured in the wet forests of the Kukulū Korah section of the province. It is also recorded from Kaduganawa, near

Kandy, and probably resorts to the damp forests about that locality.

The rich, soft plumage of this bird is very beautiful and striking.

PSITTACI.

22. *PALÆORNIS EUPATRIUS* (Legge, B. of C. p. 168).

Confined to the dry zone and found in greater abundance the nearer one gets to the E. and S.E. limits of the province. It may often be found near the foot of the hills in the interior, but then it occurs as a straggler.

23. *PALÆORNIS TORQUATUS* Boddaert (Legge, B. of C. p. 171).

One of the favourite cage-birds of the country. The Singalese are particularly fond of this bird, and there is hardly a town in the province where it may not be found as one of the domestic animals of one or more households. It is met with in the wild state in vast numbers in the dry zone, and one district on the borders of Sabaragamuwa is called the "Girrawa Pattu," or Parrot "Pattu," owing to the presence of these birds. It breeds in large, high trees, in holes in the trunk or branches, laying four or five white eggs. The eggs are free from any gloss, and look more or less chalky.

24. *PALÆORNIS CYANOCEPHALUS* (Legge, B. of C. p. 174).

This very beautiful Parrot takes up a more intermediate distribution, being most common between the very wet and very dry zones, and may often be found in the open country at very high altitudes. It is not, strictly speaking, a forest species, and affects districts where most of the land is open, breeding in solitary trees. After the S.W. monsoon is past it spreads up into the tea-districts, where it may often be met with in small noisy flocks of six or eight birds.

25. *PALÆORNIS CALTHROPÆ* (Legge, B. of C. p. 177, pl. vi. fig. 1).

An indigenous species and more distinctly confined to the wet zone and damp forests, but I have occasionally met with

it also in the dry country, where it must be regarded as a straggler. It breeds in high forests and, like all the foregoing, in big trees. Eggs pure white and devoid of gloss.

26. *LORICULUS INDICUS* (Legge, B. of C. p. 180, pl. vi. fig. 2).

Peculiar to Ceylon. I am inclined to consider that this species should be regarded as more abundant in the intermediate districts between the wet and dry zones, as it is certainly to be found in greater numbers in that limit than in the extremes. It often ascends up to the highest hills, but is then only an occasional visitor. It breeds in high trees, but I have never succeeded in procuring the eggs.

In Colombo it may be frequently found for sale, and is known as the "Love-bird."

PICARIÆ.

27. *IYNGIPICUS GYMNOPHTHALMOS* Blyth (Legge, B. of C. p. 186).

This is our smallest Woodpecker, and much more often heard than seen. It is most frequently found round the base of the hill-country, on the limits of the dry zone, but rarely in the very wet country. It frequents high dead trees and the solitary clumps of them that are often to be found in grass-lands, but it is nowhere particularly abundant.

Travancore and Ceylon.

28. *CHRYSOCOLAPTES STRICKLANDI* (Legge, B. of C. p. 188, pl. vii.).

Indigenous to Ceylon. So far as this province goes it must be regarded as a purely forest species, and more abundant in the wet zone up to high altitudes than elsewhere. It is frequently met with at over 6000 feet elevation and down at 100, but I have not met with it except as above stated.

I have not seen the eggs, but I have found the nests. The birds appear to be shy in their breeding-habits, as on each occasion that I examined the nests they were promptly abandoned.

29. *GEVINUS STRIOLATUS* (Legge, B. of C. p. 194).

A more or less strictly forest species, and found from 2500 to 6000 feet. On all occasions that I have found it, I have observed that it was in forests away from the open lands, but I find that Legge states that it is almost entirely restricted to the Patinas.

30. *CHRYSOPHLEGMA XANTHODERUS* (Legge, B. of C. p. 197).

Not uncommon, and chiefly confined to the medium wet zone, extending down to the limits of the dry country.

I obtained in March 1892 two eggs from the trunk of a *Ficus glomerata*. The eggs were pure white, and rested on a roughly hollowed cup in centre of a decayed portion of the tree. This Woodpecker occurs in S. India and Travancore.

31. *MICROPTERNUS GULARIS* (Legge, B. of C. p. 200).

Chiefly a dry-zone bird so far as I have been able to discover, but I have on one occasion met with it in a coconut garden in Ratnapura.

In the dry country to the east I have frequently found it on fresh incrustations on ant-hills, eating white ants, to which it would appear to be partial.

32. *BRACHYPTERNUS CEYLONUS* (Legge, B. of C. p. 202, pl. viii.).

An indigenous species. It occurs all through the wet country of the province below 3000 feet, and is frequently met with in the gardens belonging to natives. I obtained three eggs of this Woodpecker from the dead branch of an *Artocarpus nobilis*. The eggs are pure white and glossy. Beyond making a deep excavation into the centre of the branch, the nest was of the crudest description, and the eggs were mixed up with wood chips &c.

33. *MEGALÆMA ZEYLANICA* (Legge, B. of C. p. 208, pl. x. fig. 1).

A common indigenous species, spreading over both wet and dry parts of the province up to 2500 feet, after which it

is rarely seen. In point of numbers I have found this Barbet more abundant in the dry zone, but it is not specially restricted thereto.

The eggs are always laid in holes in trees, and are pure white with a creamy white gloss.

34. *MEGALĒMA FLAVIFRONS* (Legge, B. of C. p. 212, pl. x. fig. 2).

An indigenous and abundant species, common all over the province.

It breeds like *M. zeylanica*. Eggs white.

35. *XANTHOLĒMA RUBRICAPILLA* (Legge, B. of C. p. 215, pl. xi. fig. 1).

Indigenous, and up to about 3000 feet nearly as common as *Megalēma flavifrons*. It breeds in holes in dead branches of soft-wood trees. Eggs very round and glossy white.

36. *XANTHOLĒMA HĒMACEPHALA* (Legge, B. of C. p. 218).

Strictly a dry-zone species. It occurs in the Kegalla district towards the north-west, and again in the Kolonna Korah towards the Tangalla district.

37. *CUCULUS SONNERATI* (Legge, B. of C. p. 233).

A rare dry-zone bird, occurring sparingly in plains below the Rakwana hills.

Recorded from South Konkan by Vidal ('Stray Feathers,' 1881, p. 54).

38. *HIEROCOCCYX VARIUS* (Legge, B. of C. p. 240).

A migrant, arriving in the province late in October and departing again in May. During its stay it is particularly restless and noisy, and may be heard uttering its monotonous and gamut-like cry at all times of the day, and often on moonlight nights.

It does not appear to confine itself to any particular altitude or zone, as it is equally common through the low country as well as the hills.

39. *SURNICULUS LUGUBRIS* (Legge, B. of C. p. 243).

I have only twice obtained this Cuckoo, in the Balangoda

district. On the first occasion I found it, it was being tormented by Drongos that actually pecked it to death.

40. *COCCYSTES JACOBINUS* (Legge, B. of C. p. 246).

I have met with it only in the dry zone, in the plains extending towards the south.

41. *COCCYSTES COROMANDUS* (Legge, B. of C. p. 249).

I obtained a single specimen of this Cuckoo during the N.E. monsoon, at 2300 feet altitude, in the Balangoda district.

42. *EUDYNAMIS HONORATA* (Legge, B. of C. p. 251).

An abundant low-country species, but rarely found above 1000 feet. It breeds in the country, depositing its eggs in the nests of the Black Crow.

This is, without exception, the most noisy bird in the country, and during the breeding-season its cry is most irritating and monotonous.

43. *PHENICOPHAES PYRRHOCEPHALUS* (Legge, B. of C. p. 255, pl. xii.).

An endemic species, rarely found above 3000 feet in this province, and more abundantly at low levels on the confines of the dry zone. I obtained some young birds just able to fly at a place called Kurugangmodera, and found both parent-birds taking an active part in feeding the young ones. This beautiful Cuckoo is the only gregarious one of the family, so far as I am aware, in Ceylon.

44. *ZANCLOSTOMUS VIRIDIROSTRIS* (Legge, B. of C. p. 258).

Distinctly a dry-zone bird. It occurs on the north in the Kegalla district, where, up to 1500 feet, it is not uncommon. Again, towards the east, and right down to the base of the Morowak Korah hills, it is fairly plentiful, and ascends as far as Balangoda, where I have obtained it at 2000 feet.

45. *CENTROPUS RUFIPENNIS* (Legge, B. of C. p. 260).

Common all over the province, except perhaps at the altitude of 5000 feet and over. It avoids the deep forests, preferring the outskirts, gardens, and fields, where it is always abundant.

46. *CENTROPUS CHLORORHYNCHUS* (Legge, B. of C. p. 263, pl. xiii.).

Indigenous. I have met with it only in the country extending from the northward base of the Rakwana hills towards the Wallawey river, and again on the northern confines of the Kegalla district in the valley of the Maha Oya. I notice that Legge records it from the Ratnapura side of the Peak range, but though I resided there for several years I did not observe it.

47. *HARPACTES FASCIATUS* (Legge, B. of C. p. 269).

A bird with a very wide distribution in the Sabaragamuwa Province. I have found it in dense, gloomy, wet forests in the wilderness of the Peak, in the cold hill-forests near the Horton Plains, and again in the satinwood forests of the dry zone to the south and east. In the wet country on the borders of the Western Province it becomes fairly common, but cannot be regarded as plentiful anywhere.

I am indebted to my friend Mr. Simmons, of the Public Works Department, for some information as to this bird's nidification. According to him, the nest was placed in a hollow of a dead kittul palm (*Caryota urens*); the eggs were mottled over with a number of richly-coloured spots, but were unfortunately lost.

I am inclined to believe that a second species of Trogon is to be found in the South and S.E. of Ceylon, as on one occasion when I was out plant-collecting I came upon a most brilliantly-marked *Harpactes* with a *vermilion* breast, with very bright chestnut upper surface, and less of the blue colouring round the eyes and gape, and more like Mr. Keulemans's beautiful figure of *H. whiteheadi* (Ibis, 1888, pl. xii.). I had a close view of the bird—it was on the banks of the Kiviude river in the Southern-Province dry zone—and I could clearly see that it was not our common bird.

48. *ANTHRACOCERUS CORONATUS* (Legge, B. of C. p. 272).

A strictly dry-zone bird. I have only found it up the valley of the Wallawey river in this province as far as

Embelipitiyé, and again more to the south in the plains, towards Hambantotta.

49. *TOCKUS CINGALENSIS** (Legge, B. of C. p. 275, pl. xiv.).

Peculiar to Ceylon. I have obtained it both in the forests of the dry zone as well as in the wet up to 3000 feet, and I have at rare intervals seen it at 5000 feet. I am under obligation to Mr. G. W. Jenkins for having obtained an egg of this species for me from the Gillimali forests. It was a dull white in colour and broadly oval in shape. Again, at Pindeniya, in the Kegalla district, I found a newly-hatched bird, just able to fly, being fed by both parents. The nest was in the hollow of a *Dipterocarpus zeylanicus* at a great height from the ground; but I was unable to secure any part of it, as the hen had broken her way out from the mud-surroundings that undoubtedly are used.

50. *UPUPA NIGRIPENNIS* (Legge, B. of C. p. 278).

A strictly dry-zone bird. It is almost confined to the borders of the south of the province next to the Hambantotta district, where it is fairly numerous in the open scrubby plains.

51. *CORACIAS INDICA* (Legge, B. of C. p. 281).

I have obtained this bird in the intermediate region between the wet and dry parts of the province, both in the north and west. It appears to some extent to migrate between these limits; thus I have found it abundantly in the wet-zone country adjoining the Colombo district, and again in the hot plains below the Alagela mountain-range.

52. *EURYSTOMUS ORIENTALIS* (Legge, B. of C. p. 285).

The distribution of this extremely rare bird is apparently confined to one part of the province, where I have found it on the Gongala range of hills, and on a continuation of the same chain of hills into the Kukulu Korah, where, in January 1893, I again met with it. The hills I refer to are on the

* Surely this name should be written *cingalensis*, and not *gingalensis*, as the latter is absurd.

limit of the wet zone, where they rise abruptly from the hot plains. I found a specimen in the private collection of a friend, who stated that he had shot it at the top of Longford Estate, which is near the summit of the range just mentioned.

53. *ALCEDO BENGALENSIS* (Legge, B. of C. p. 292).

Abundant throughout the province, and found breeding up to 3000 feet altitude.

The effect of rainfall, or perhaps I should say humidity, distinctly modifies the colouring in some, if not in all birds, and I do not know a better example of this than in the present species. I have obtained specimens of it from the driest parts of the province, and again from the wettest, and the difference in general colour was one of several degrees of shade. Thus, taking the examples of *Alcedo bengalensis* obtained at Bedigantotta on the Wallawey river, say 12 miles in a direct line from Hambantotta, with a mean rainfall of 42 inches, and comparing them with examples obtained in the valley of the Kuru river, that drains an area over which the rainfall exceeds 300 inches, it is almost as comparing brown with black. The dry-zone forms are always paler, with a greenish gloss over the blue colouring, while the wet-zone birds are of a deep blue on all the blue patches. I think this fact may be explained in this way: that as vegetation is more rank in wet steamy localities than in the plains, where for months hardly a drop of rain falls to revive the drooping undergrowth, it must follow that the more dense the vegetation, the deeper the shadows cast by trees &c. on the banks of streams, and by adaptation, the coloration of the forms inhabiting such spots will be varied accordingly. I noticed in Borneo, while working on the Segalind river, that in some of the most gloomy growths of vegetation there were the darkest forms of this Kingfisher, while specimens taken from the paddi-fields in the North-western Province of Ceylon might at first glance be easily taken for a different species when the two were set side by side, if colour only were taken as a standard on which to base specific differences.

The eggs are generally three in number and of a pure glossy white colour, with a shade of pink before they are blown.

54. *PELARGOPSIS GURIAL* (Legge, B. of C. p. 295).

Generally speaking a low-country bird, and in Sabaragamuwa Province I think about equally abundant in both zones. I have found it at 2300 feet elevation, but it rarely migrates above 1000 feet.

I obtained three eggs from a nest constructed in the dead branch of a kumbuk tree (*Terminalia glabra*) that was overhanging a river.

55. *HALCYON SMYRNENSIS* (Legge, B. of C. p. 298).

Found up to 5000 feet, but is much more abundant at about 1000 feet, at which altitude it may be found in almost every paddy-field. It breeds in the province.

56. *CEYX TRIDACTYLA* (Legge, B. of C. p. 303).

I have met with this bird only about six times, and on each occasion in the low country. I am not able to say whether it is more exclusively a dry-zone form than the opposite, as the few opportunities I have had of seeing it are insufficient to base conclusions upon.

57. *MEROPS PHILLIPENSIS* (Legge, B. of C. p. 306).

A very abundant migrant, arriving in Ceylon early in September and departing again towards the end of April. During its stay it is found in great numbers in the open country, especially in the neighbourhood of rice-fields, where it is particularly common. It is not a forest species, and as distinct from the next species it is not a dry-zone bird, though it is often found close to the sea-coast. I have not met with its eggs.

58. *MEROPS VIRIDIS* (Legge, B. of C. p. 309).

I have found this Bee-eater only in the very driest part of the province, between Embelipittiya and Bedigantotta, where it is very common on the low scrub open land.

59. *MEROPS SWINHOII* (Legge, B. of C. p. 312).

In this province I have found the Chestnut-headed Bee-

eater strictly confined to the valleys of the larger rivers within the wet zone: thus it is common in the valley of the Kaluganga from Gillimally to Kalutara; in the Kalani Ganga from Colombo to the Kehelgama hills and its tributary streams.

60. *CHLETURA GIGANTEA* (Legge, B. of C. p. 314).

It is difficult to place a limit within a province across which a bird could fly in a couple of hours, so I am unable in this instance to assign a specific locality or zone to this fine Swift. It is rather more abundant on the whole at high altitudes, about 5000 feet, than in the plains, but I have also met with it in the Bintenna.

61. *CYPSELUS MELBA* (Legge, B. of C. p. 317).

Like the last, a bird of immense power of flight, and thus difficult to locate. I have found it along the southern slopes of the Peak Range right up to the Galagama Valley and the Horton Plains.

62. *CYPSELUS AFFINIS* (Legge, B. of C. p. 319).

I have met with this bird at irregular intervals in the lower hill-country towards the east of the province, but only as a visitor.

63. *CYPSELUS BATASSIENSIS* (Legge, B. of C. p. 322).

Chiefly confined to the open country in the eastern centre of the province. It is rarely found at high altitudes, but may occasionally be seen in small flocks in both the Rukwana and Balangoda hill-ranges.

South India and Burmah.

64. *COLLOCALIA FRANCICA* (Legge, B. of C. p. 324).

A common species in this province, and breeding in many of the deeper rocky ravines of wet forests. I have met with "breeding-stations" at 2000 feet and up to 5000 feet, but in all instances directly in the neighbourhood of water. Close to the province-boundary there is a large cave known to the natives as Liniyagalla, or the Swifts' Rock, where many years ago the right to collect their nests was sold by Government to a Chinaman. But this source of revenue

does not now exist in Ceylon, as there are but few Chinese in the island, and the quality of the nests obtained is so poor as not to justify their being collected for exportation.

65. *DENDROCHELIDON CORONATUS* (Legge, B. of C. p. 328).

Frequently found throughout the province, but not above 3000 feet, and more particularly in the intermediate districts between the wet and dry zones.

66. *BATRACHOSTOMUS MONILIGER* (Legge, B. of C. p. 331).

I have only once met with this very curious bird in the Balangoda district (wet zone), when I found an example sitting asleep on the low branch of a tree. Having no gun in my hand at the moment, I could not shoot it, but I have not the least doubt as to its identity.

67. *CAPRIMULGUS KELAARTI* (Legge, B. of C. p. 337).

I have found this bird only in the highest parts of the province, where it appears to be confined to forests bordering grass-lands. Its curious note can often be heard in the jungle during the day, but it rarely ventures within sight till the shades of evening have fallen.

A nest was procured—if nest it could be called—by a friend, containing one egg, that I had an opportunity of examining. It was of a yellowish-salmon colour, broadly blotched with brown.

68. *CAPRIMULGUS ATRIPENNIS* (Legge, B. of C. p. 340).

A dry-zone bird, though not strictly so, as I have found it on the confines of the wet zone repeatedly; but in point of abundance I have met with the greatest numbers at the foot of the hills on the east of the province, where it may easily be distinguished by its curious habit of sitting on the branches of the trees and bushes, unlike the following.

69. *CAPRIMULGUS ASIATICUS* (Legge, B. of C. p. 343).

This is our commonest Nightjar, and is found in all parts of the province up to the foot of the hills, ascending up to 2500 feet in the eastern parts of the country. I have observed a curious break in the distribution of this bird that is worthy of remark.

This Nightjar is found in abundance in the little village of Veralupe, that adjoins the town of Ratnapura, but half a mile to the east it does not occur, and a little beyond it again appears in numbers. I can find no explanation for this curious phenomenon, though I have watched the case with curiosity for some years.

[To be continued.]

XXXII.—*Notes on the Birds of Northern Formosa.*

By J. D. D. LA TOUCHE*.

1. *MERULA PALLIDA* (Gm.).

A common Thrush in winter in Northern Formosa. Seen as late as 15th April. I shot at Tokoham on 27th January a male example of this species in full adult plumage, and one showing a little white on the throat. Another shot on the North Hill on 19th February is in nearly as fine plumage as the first of the Tokoham birds.

I have only pale-throated specimens from Fohkien, and one or two of these show a faint eyebrow.

2. *MERULA CHRYSOLAUS* (Temm.).

None of this species were noticed during the winter, but two were obtained near Hobé on 5th and 14th March. Several other Thrushes seen during March and April were, I believe, of the same kind.

3. *MERULA OBSCURA* (Gm.).

One was obtained on North Hill on 19th March.

A party of Thrushes seen on 7th February at Hobé flying

* [In a letter accompanying these notes Mr. La Touche states that he was resident at Tamsui, in Northern Formosa, from October 1894 to July 1895, nearly all the time without a collector. He was able to make but one trip inland, and that a flying visit to the border of the savages' territory—the Japanese, by their misgovernment, having practically closed the country to foreigners.

Mr. La Touche recommends an expedition to "Botel Tobago"—a small hilly and wooded islet about 40 miles east of the south cape of Formosa, which has never been visited by a naturalist. It appears to be what is called in Johnston's Royal Atlas "Bashee Island."—EDD.]